

REMARKS

This Application has been carefully reviewed in light of the Office Action mailed July 5, 2007. Claims 1-46 were pending in the Application. In the Office Action, Claims 1-46 were rejected. In order to expedite prosecution of this Application, Applicants amend Claims 1, 11, 21, 31, 32, 33, 37, 41, 45, and 46. Claims 47-56 are added. Thus, Claims 1-56 are pending in the Application. Applicants respectfully request reconsideration and favorable action in this case.

In the Office Action, the following actions were taken or matters were raised:

SECTION 101 REJECTIONS

Claims 1-46 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Applicants respectfully traverse these rejections.

MPEP 2106.02 states that a nonstatutory process is defined as a claim that "consist[s] solely of mathematical operations without some claimed practical application" or "simply manipulate[s] abstract ideas...without some claimed practical application." (MPEP 2106.02) (emphasis added). The Federal Circuit has also held that a process claim that applies a mathematical algorithm to "produce a useful, concrete, tangible result without pre-empting other uses of the mathematical principle, on its face comfortably falls within the scope of § 101," *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1358, 50 USPQ.2d 1447, 1452 (Fed. Cir. 1999) (emphasis added).

Of the rejected claims, Claims 1, 11, 21, 31, 32, 33, 37, 41, 45, and 46 are independent. In the Office Action, the Examiner appears to indicate that independent Claims 1 is directed toward non-statutory subject matter because Claim 1 is purportedly directed toward a mathematical abstraction and/or software per se and purportedly recites "nothing more than a judicial exception of mathematical abstraction, involving no physical transformation and no more than the results of mathematical transformation" (Office Action dated July 25, 2007, pages 2-3). Applicants respectfully disagree.

Applicants respectfully submit that Claim 1, as amended, define patentable subject matter, have at least one practical application, and fully complies with the requirements of 35 U.S.C. § 101. For example, Claim 1 recites at least one practical application and useful, concrete, tangible result, namely the practical application of reducing "the inter-symbol

interference between simultaneous agents during concurrent use of the shared resource" as recited by Claim 1 (emphasis added). The aforementioned practical application and result are not mere mathematical algorithms, natural phenomena, laws of nature, or a manipulation thereof. Nor is Claim 1 directed toward nothing more than a result of a mathematical operation. Therefore, Claim 1 is in full compliance with the requirements of 35 U.S.C. § 101. Accordingly, for at least this reason, Applicants respectfully request that the rejection of Claim 1 be withdrawn.

The Examiner also appears to indicate that independent Claim 11 is directed toward non-statutory subject matter. The Examiner states that "[n]o data structure is claimed and no functional program is indicated. Rather, two components and their purposes are disclosed. Lacking function description language, the claim is non-statutory under 35 U.S.C. 101." (Office Action dated July 25, 2007, page 3). Applicants respectfully disagree. Claim 11 recites "an overlap generator operable to...convert the number of bits to form at least one correlithm object configured to reduce the inter-symbol interference between simultaneous agents during concurrent use of a shared resource" (emphasis added). For at least the reasons indicated with respect to independent Claim 1, Applicants respectfully submit that Claim 11 recites at least one practical application and useful, concrete, tangible result, namely the practical application of reducing "the inter-symbol interference between simultaneous agents during concurrent use of the shared resource" as recited by Claim 11 (emphasis added). Accordingly, Applicants respectfully submit that Claim 11, as amended, is directed to statutory subject matter.

In the Office Action, the Examiner also appears to indicate that independent Claim 21 is directed toward non-statutory subject matter because Claim 21 purportedly "involves no physical transformation and asserts not more than the results of mathematical operations." (Office action dated July 25, 2007, page 4). Applicants respectfully disagree. For example, Claim 21 recites "the at least one correlithm object token formed from a conversion of the number of bits and configured to reduce the inter-symbol interference between simultaneous agents during concurrent use of the shared resource" (emphasis added). For at least the reasons indicated with respect to independent Claim 1, Applicants respectfully submit that Claim 21 recites at least one practical application and useful, concrete, tangible result, namely the practical application of reducing "the inter-symbol interference between simultaneous agents during concurrent use of the shared resource." Accordingly, Applicants respectfully submit that Claim 21, as amended, is directed to statutory subject matter.

The Examiner also appears to indicate that independent Claim 31 is directed toward non-statutory because "no data structure is claimed and no functional program is disclosed. Lacking functional description language, the claim only recites the § 101 judicial exceptions of mathematical abstraction and/or algorithm." (Office Action dated July 25, 2007, page 5). Applicants respectfully disagree. Independent Claim 31 recites "means for recovering the imposed correlithm object in accordance with the comparison to impose at least one correlithm object token in a shared resource, the at least one correlithm object token formed from a conversion of the number of bits and configured to reduce the inter-symbol interference between simultaneous agents during concurrent use of the shared resource" (emphasis added). Applicants respectfully submit that Claim 31, as amended, is directed to statutory subject matter.

The Examiner also appears to indicate that independent Claims 32, 33, 41, 45 and 46 are directed toward non-statutory subject matter because the Claims 32 recites "no more than the §101 judicial exception of an algorithm" and disclose no physical transformation or useful, concrete, and tangible result." (Office Action, pages 6-7). Furthermore, the Examiner also appears to indicate that independent Claim 37 is directed toward non-statutory subject matter because "no physical transformation in the real world and no product of useful, concrete and tangible results is possible." (Office Action, page 7). Applicants respectfully submit that Claims 32, 33, 41, 45 and 46, as amended, are directed statutory subject matter.

Claims 2-10, 12-20, 22-30, 34-36, 38-40, and 42-44 depend respectively from independent Claims 1, 11, 21, 31, 32, 33, 37, 41, 45 and 46. For at least the reasons discussed above, Claims 1, 11, 21, 31, 32, 33, 37, 41, 45 and 46 are in condition for allowance and, therefore, Claims 2-10, 12-20, 22-30, 34-36, 38-40, and 42-44 that depend respectively therefrom are also in condition for allowance. Accordingly, Applicants respectfully requests that the rejection of Claims 2-10, 12-20, 22-30, 34-36, 38-40, and 42-44 be withdrawn.

SECTION 102 REJECTIONS

Claims 1-3, 5, 7-11, 14, 15, 17, 21-23, 25, 27, 28 and 31 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,515,477 issued to Sutherland (hereinafter "Sutherland"). Applicants respectfully traverse this rejection.

Under 35 U.S.C. § 102, a claim is anticipated only if each and every element as set forth in the claim is found in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051 (Fed. Cir. 1987); M.P.E.P. § 2131. In addition, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claims" and "[t]he elements must be arranged as required by the claim." *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989); *In re Bond*, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990); M.P.E.P. § 2131.

Of the rejected claims, Claims 1, 11, 21 and 31 are independent. Independent Claim 1 recites "establishing a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space and having a number of bits per dimension", "imposing the plurality correlithm objects on the space to yield a combined point", "comparing an imposed correlithm object to the combined point" and "recovering the imposed correlithm object in accordance with the comparison to impose at least one CO token in a shared resource, the at least one correlithm object token formed from a conversion of the number of bits and configured to reduce the inter-symbol interference between simultaneous agents during concurrent use of the shared resource" (emphasis added). Applicants respectfully submit that *Sutherland* does not disclose or even suggest each and every limitation recited by Claim 1. Nowhere does *Sutherland* disclose the emphasized limitations as recited by independent Claim 1. Therefore, for at least these reasons, Applicants submit that *Sutherland* does not anticipate independent Claim 1.

Independent Claim 11 recites "an overlap generator operable to: establish a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space and having a number of bits per dimension," "impose the plurality correlithm objects on the space to yield a combined point; and convert the number of bits to form at least one correlithm object configured to reduce the inter-symbol interference between simultaneous agents during concurrent use of a shared resource; and "a recoverer coupled to the overlap generator and operable to: compare an imposed correlithm object to the combined point; and recover the imposed correlithm object in accordance with the comparison to impose at least one CO token in a shared resource" (emphasis added). Independent Claim 21 recites logic operable to " establish a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space and

having a number of bits per dimension", "a correlithm object comprising a point of the space", "impose the plurality correlithm objects on the space to yield a combined point", "compare an imposed correlithm object to the combined point", "recover the imposed correlithm object in accordance with the comparison to impose at least one correlithm object token in a shared resource, the at least one correlithm object token formed from a conversion of the number of bits and configured to reduce the inter-symbol interference between simultaneous agents during concurrent use of the shared resource" (emphasis added). Independent Claim 31 recites "means for establishing a plurality of correlithm objects of a space and having a number of bits per dimension", "the space comprising an N-dimensional space, a correlithm object comprising a point of the space", "means for imposing the plurality correlithm objects on the space to yield a combined point", "means for comparing an imposed correlithm object to the combined point", and "means for recovering the imposed correlithm object in accordance with the comparison to impose at least one correlithm object token in a shared resource, the at least one correlithm object token formed from a conversion of the number of bits and configured to reduce the inter-symbol interference between simultaneous agents during concurrent use of the shared resource." (emphasis added). For at least the reasons indicated with respect to independent Claim 1, Applicants respectfully submit that *Sutherland* fails to disclose or even suggest at least the emphasized limitations. Therefore, for at least this reason, Applicants respectfully submit that Claims 11, 21, and 31 are also patentable over the *Sutherland* reference.

Claims 2-3, 5, 7-10, 14, 15, 17, 22-23, 25, 27, and 28 depend from independent Claims 1, 11 and 21. For at least the reasons discussed above, independent Claims 1, 11 and 21 are in condition for allowance; therefore, Claims are in condition for allowance; therefore, Claims 2-3, 5, 7-10, 14, 15, 17, 22-23, 25, 27, and 28 are also in condition for allowance. Accordingly, Applicants respectfully request that the rejection of Claims 2-3, 5, 7-10, 14, 15, 17, 22-23, 25, 27, and 28 be withdrawn.

SECTION 103 REJECTIONS

Claims 6, 16, 26, 32, 33, 37, 41 and 45 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Sutherland* in view of U.S. Patent No. 6,173,275 issued to Caid et al. (hereinafter "Caid"). Claims 35 and 43 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Sutherland* in view of U.S. Patent No. 5,880,978 issued to Panwar et al. (hereinafter "Panwar"). Claim 46 was rejected under 35 U.S.C. §103(a) as being unpatentable

over *Sutherland* in view of *Caid* and further in view of *Panwar*. Claims 34, 36, 38-40, 42 and 44 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Sutherland*. Applicants respectfully traverse these rejections.

To establish a *prima facie* case of obviousness under 35 U.S.C. § 103, three basic criteria must be met: First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; second, there must be a reasonable expectation of success; and finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, (Fed. Cir. 1991); M.P.E.P. § 2143. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure. *Id.* Further, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990); M.P.E.P. § 2143.01. Additionally, not only must there be a suggestion to combine the functional or operational aspects of the combined references, but also the prior art is required to suggest both the combination of elements and the structure resulting from the combination. *Stiftung v. Renishaw PLC*, 945 F.2d 1173, 1183 (Fed. Cir. 1991). Moreover, where there is no apparent disadvantage present in a particular prior art reference, then generally there can be no motivation to combine the teaching of another reference with the particular prior art reference. *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 (Fed. Cir. 2000).

Of the rejected claims, Claims 32, 33, 37, 41, 45 and 46 are independent. Independent Claim 32 recites, at least "establishing a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space and having a number of bits per dimension, the plurality of correlithm objects being randomly generated, the plurality of correlithm objects being nearly orthogonal, a correlithm object of the plurality of correlithm objects being utilized as a correlithm object token formed from a conversion of the number of bits," "imposing the plurality correlithm objects on the space to yield a combined point by performing an imposing operation on the plurality of correlithm objects, the plurality correlithm objects imposed to perform at least one of: performing computation using the plurality of correlithm objects, communicating the plurality of correlithm objects, and storing the

plurality of correlithm objects," and "assigning one or more of the plurality of correlithm objects to each agent, the one or more correlithm objects representing a state of the agent to which the one or more correlithm objects are assigned to impose the correlithm object token in a shared resource, the correlithm object token configured to reduce the inter-symbol interference between simultaneous agents during concurrent use of the shared resource" (emphasis added). Applicants respectfully submit that for the reasons indicated above with respect to independent Claims 1, 11; 21 and 31, Claim 32 is also patentable over *Sutherland*. *Caid* does not appear to cure the deficiencies of *Sutherland*. Accordingly, the proposed combination of references does not disclose, teach or suggest all claims limitations of independent Claim 32.

Independent Claim 33 recites "randomly generating a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space and having a number of bits per dimension" and "selecting one or more of the plurality of correlithm objects as one or more correlithm object tokens, the one or more correlithm object tokens being nearly orthogonal, the at least one correlithm object token formed from a conversion of the number of bits and configured to reduce the inter-symbol interference between simultaneous agents during concurrent use of the shared resource" (emphasis added). Applicants respectfully submit that for the reasons indicated above with respect to independent Claims 1, 11, 21 and 31, Claim 33 is also patentable over *Sutherland*. *Caid* does not appear to cure the deficiencies of *Sutherland*. Accordingly, the proposed combination of references does not disclose, teach or suggest all claims limitations of independent Claim 33.

Independent Claim 37 recites, at least "a processor coupled to the memory and operable to: randomly generate a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space and having a number of bits per dimension" and "select one or more of the plurality of correlithm objects as one or more correlithm object tokens, the one or more correlithm object tokens being nearly orthogonal, the at least one correlithm object token formed from a conversion of the number of bits and configured to reduce the inter-symbol interference between simultaneous agents during concurrent use of the shared resource" (emphasis added). Independent Claim 41 recites, at least "randomly generat[ing] a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space and having a number of bits per dimension" and "select[ing] one or more of the plurality of correlithm objects as one or

more correlithm object tokens, the one or more correlithm object tokens being nearly orthogonal, the at least one correlithm object token formed from a conversion of the number of bits and configured to reduce the inter-symbol interference between simultaneous agents during concurrent use of the shared resource" (emphasis added). Independent Claim 45 recites, at least "means for randomly generating a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space and having a number of bits per dimension" and "means for selecting one or more of the plurality of correlithm objects as one or more correlithm object tokens, the one or more correlithm object tokens being nearly orthogonal, the at least one correlithm object token formed from a conversion of the number of bits and configured to reduce the inter-symbol interference between simultaneous agents during concurrent use of the shared resource" (emphasis added). Independent Claim 46 recites, at least "randomly generating a plurality of correlithm objects of a space, the space comprising an N-dimensional space", "a correlithm object comprising a point of the space and having a number of bits per dimension", the plurality of correlithm objects generated by randomly selecting one or more values for one or more entries of the random correlithm object, the at least one correlithm object token formed from a conversion of the number of bits and configured to reduce the inter-symbol interference between simultaneous agents during concurrent use of the shared resource" (emphasis added). Applicants respectfully submit that for the reasons indicated above with respect to independent Claims 1, 11, 21 and 31, Claims 37, 41, 45 or 46 are also patentable over *Sutherland*. Moreover, neither *Caid* nor *Panwar* appear to remedy at least the deficiencies of *Sutherland* discussed above. Accordingly, the proposed combination of references does not disclose, teach or suggest all claims limitations of independent Claims 37, 41, 45 or 46.

Claims 6, 16, 26, 35 depend respectively from independent Claims 1, 11, 33. For at least the reasons discussed above, independent Claims 1, 11 and 33 are in condition for allowance; therefore, Claims 6, 16, 26 and 35 that depend respectively therefrom are also in condition for allowance. Accordingly, Applicants respectfully request that the rejection of Claims 6, 16, 26, 35 be withdrawn.

NEW CLAIMS

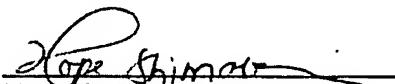
Applicants add new Claims 47-56. New Claims 47-56 are fully supported by the specification as originally filed. Therefore, Applicants respectfully requests allowance of new Claims 47-56.

CONCLUSION

Applicants have made an earnest attempt to place this case in condition for immediate allowance. For the foregoing reasons and for other reasons clearly apparent, Applicants respectfully request reconsideration and full allowance of all pending claims.

An RCE filing fee of \$405.00 is believed due. With the presentation of new Claims 47-56, an excess claim fee of \$250.00 pursuant to 37 C.F.R. § 1.16 is believed due, and a one month extension of time fee of \$60.00 pursuant to 37 CFR 1.136(a) is also believed due. The Director of Patents and Trademarks is hereby authorized to charge Deposit Account No. 13-4900 of Munsch Hardt Kopf & Harr, P.C. in the amount of \$715.00 to satisfy the RCE filing fee. If, however, Applicants has miscalculated the fee due with this RCE, the Director is hereby authorized to charge any fees or credit any overpayment associated with this RCE to Deposit Account No. 3-4900 of Munsch Hardt Kopf & Harr, P.C.

Respectfully submitted,

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